CLAIMS

What is claimed is:

1.　　A method of processing data which is communicated over a computer network, said method comprising:

　　　　processing a first group of network packets in a first processor which executes

　　　　　　a first network protocol stack, said first group of network packets

　　　　　　being communicated through a first network interface port;

　　　　processing a second group of network packets in a second processor which

　　　　　　executes a second network protocol stack, said second group of

　　　　　　network packets being communicated through said first network

　　　　　　interface port.

2.　　A method as in claim 1 wherein said first network protocol stack and said second network protocol stack are separate processing threads.

3.　　A method as in claim 2 wherein said separate processing threads each comprise separate operating system software processing logic.

4.　　A method as in claim 1 wherein said first network protocol stack and said second network protocol stack use the same network protocols.

5. A method as in claim 4 wherein said same network protocols comprise at least one of (a) an Internet Protocol (IP) and (b) a Transmission Control Protocol (TCP).

6. A method as in claim 1 wherein said first group of network packets are associated with a first network session between a host processing system and a first digital processing system and said second group of network packets are associated with a second network session between said host processing system and a second digital processing system.

7. A method as in claim 1 wherein:

said processing of said first group comprises receiving first packet header data from said first network interface port and transmitting first application data associated with said first packet header data to a host processing system;

said processing of said second group comprises receiving second packet header data from said first network interface port and transmitting second application data associated with said second packet header data to said host processing system.

8. A method as in claim 1 wherein:

said processing of said first group comprises receiving first application data from a host processing system and preparing a first packet header data associated with said first application data and causing said first

application data and said first packet header data to be transmitted over

said computer network through said first network interface port;

said processing of said second group comprises receiving second application

data from said host processing system and preparing a second packet

header data associated with said second application data and causing

said second application data and said second packet header data to be

transmitted over said computer network through said first network

interface port.

9.   A method as in claim 1 wherein said first network interface port comprises an

Ethernet interface.

10.   A method as in claim 1 wherein said first group of network packets are

assigned to said first processor through a programmable hashing operation on said

first group of network packets and wherein said second group of network packets are

assigned to said second processor through said programmable hashing operation.

11.   A system for processing data which is communicated over a computer

network, said system comprising:

a network interface port;

a first processor coupled to said network interface port, said first processor

executing a first network protocol stack to process a first group of

network packets which are communicated through said network

interface port;

a second processor coupled to said network interface port, said second

processor executing a second network protocol stack to process a

second group of network packets which are communicated through

said network interface port.

12.   A system as in claim 11 wherein said first network protocol stack and said

second network protocol stack are separate processing threads.

13.   A system as in claim 12 wherein said separate processing threads each

comprise separate operating system processing logic.

14.   A system as in claim 11 wherein said first network protocol stack and said

second network protocol stack use the same network protocols.

15.   A system as in claim 14 wherein said same network protocols comprise at least

one of (a) an Internet Protocol (IP) and (b) a Transmission Control Protocol (TCP).

16.   A system as in claim 11 wherein said first group of network packets are

associated with a first network session between a host processing system and a first

digital processing system and said second group of network packets are associated

with a second network session between said host processing system and a second

digital processing system.

17.　A system as in claim 11 wherein:

said first processor receives first packet header data from said first network

interface port and causes first application data associated with said first

packet header data to be transmitted to a host processing system;

said second processor receives second packet header data from said first

network interface port and causes second application data associated

with said second packet header data to be transmitted to said host

processing system.

18.　A system as in claim 11 wherein:

said first processor receives first application data from a host processing

system and prepares a first packet header data associated with said first

application data and causes said first application data and said first

packet header data to be transmitted over said computer network

through said first network interface port;

said second processor receives second application data from said host

processing system and prepares a second packet header data associated

with said second application data and causes said second application

data and said second packet header data to be transmitted over said

computer network through said first network interface port.

19.   A system as in claim 11 wherein said first network interface port comprises an Ethernet interface.

20.   A system as in claim 11 wherein said first group of network packets are assigned to said first processor through a programmable hashing operation on said first group of network packets and wherein said second group of network packets are assigned to said second processor through said programmable hashing operation.

21.   A system as in claim 11 further comprising:

a first bus coupled to said first processor and to said second processor and to said network interface port;

a first memory coupled to said first bus;

a first memory controller coupled to said first bus and to said first memory, at least a portion of said first group of network packets and a portion of said second group of network packets being stored in said first memory.

22.   A system as in claim 21 further comprising:

a host bus interface coupled to said first bus;

a second bus coupled to said host bus interface;

a second memory coupled to said second bus;

a second memory controller coupled to said second bus and to said second

memory;

a host processor coupled to said second bus and to said second memory.

23.   A system as in claim 21 wherein said first processor, said second processor,

said first bus and said first memory controller are all fabricated on a single integrated

circuit.

24.   A system as in claim 22 wherein before said first processor executes said first

network protocol stack to process said first group of network packets, said portion of

said first group is stored in said first memory through a first direct memory access

(DMA) operation.

25.   A system as in claim 24 wherein after said first processor executes said first

network protocol stack to process said first group, said portion of said first group is

stored in said second memory through a second DMA operation.

26.   A system as in claim 21 wherein said portion of said first group and said

portion of said second group are stored in said first memory in pre-allocated portions

of said first memory.

27.   A system as in claim 21 further comprising:

first dispatch logic coupled to said network interface port and to said first bus,

said first dispatch logic assigning said first group to said first

processor through a programmable hashing operation on said first

group.

28.   A system as in claim 27 wherein said first dispatch logic assigns said second

group to said second processor through a programmable hashing operation.

29.   A system as in claim 28 further comprising:

second dispatch logic coupled to said first bus and to said host bus interface,

said second dispatch logic assigning packets from said second bus to

one of said first processor or said second processor.

30.   A system as in claim 11 wherein said first processor and said second

processor are general purpose, programmable processors.

31.   A machine readable medium (MRM) containing executable program

instructions which when executed by a processing system cause said processing

system to perform a method of processing data which is communicated over a

computer network, said method comprising:

processing a first group of network packets in a first processor which executes

a first network protocol stack, said first group of network packets

being communicated through a first network interface port;

processing a second group of network packets in a second processor which executes a second network protocol stack, said second group of network packets being communicated through said first network interface port.

32.   A MRM as in claim 31 wherein said first network protocol stack and said second network protocol stack are separate processing threads.

33.   A MRM as in claim 32 wherein said separate processing threads each comprise separate operating system software processing logic.

34.   A MRM as in claim 31 wherein said first network protocol stack and said second network protocol stack use the same network protocols.

35.   A MRM as in claim 34 wherein said same network protocols comprise at least one of (a) an Internet Protocol (IP) and (b) a Transmission Control Protocol (TCP).

36.   A MRM as in claim 31 wherein said first group of network packets are associated with a first network session between a host processing system and a first digital processing system and said second group of network packets are associated with a second network session between said host processing system and a second digital processing system.

37.   A MRM as in claim 31 wherein:

said processing of said first group comprises receiving first packet header data from said first network interface port and transmitting first application data associated with said first packet header data to a host processing system;

said processing of said second group comprises receiving second packet header data from said first network interface port and transmitting second application data associated with said second packet header data to said host processing system.

38.   A MRM as in claim 31 wherein:

said processing of said first group comprises receiving first application data from a host processing system and preparing a first packet header data associated with said first application data and causing said first application data and said first packet header data to be transmitted over said computer network through said first network interface port;

said processing of said second group comprises receiving second application data from said host processing system and preparing a second packet header data associated with said second application data and causing said second application data and said second packet header data to be transmitted over said computer network through said first network interface port.

39.   A MRM as in claim 31 wherein said first network interface port comprises an Ethernet interface.

40.   A MRM as in claim 31 wherein said first group of network packets are assigned to said first processor through a programmable hashing operation on said first group of network packets and wherein said second group of network packets are assigned to said second processor through said programmable hashing operation.

41.   A method as in claim 1 wherein said first network protocol stack and said second network protocol stack use different network protocols.

42.   A system as in claim 11 wherein said first network protocol stack and said second network protocol stack use different network protocols.

43.   A machine readable medium as in claim 31 wherein said first network protocol stack and said second network protocol stack use different network protocols.

44.   A method as in claim 1 further comprising:
        processing a third group of network packets in said first processor which
                executes said first network protocol stack, said third group of network
                packets being communicated through a second network interface port.

45.   A system as in claim 11 further comprising:

at least one further network interface port coupled to said first processor and said second processor.

46.   A system as in claim 17 wherein said first processor and said second processor are coupled to a further host processing system.